

PACIFIC GAS AND ELECTRIC COMPANY

ENGINEERING & OPERATIONS
GAS TRANSMISSION AND DISTRIBUTION
GAS ENGINEERING
GAS SYSTEM INTEGRITY
Risk Management



Long Term Integrity Management Plan NSeg 132-2004

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1.0 PURPOSE AND SUMMARY

The purpose of this report is to document the development of a Long Term Integrity Plan (LTIMP) and the Prevention and Mitigation (P/M) strategies for NSeg 132-2004. It covers HCAs in:

- 132, The section of L-132-0.00 from MP 22.59 to MP 40.77 (from near Woodhill drive at the Woodside/Redwood City border to north west of the Avalon off ramp to 280 in South San Francisco) and includes 24", 30" and 36" OD, 0.281", 0.313", 0.375", 0.406", 0.5" and 0.547", WT pipes and the pipe specifications include Grade B, SMLS, and X-52, X-60 DSAW. It was originally installed in 1947 and 1948.
- 132A, includes 12", 16" and 24" Grade B, SMLS and X42 and X-52 ERW and DSAW pipes installed in 1944, 1969 and 1981 and connects lines 109 and 132 at Sierra Vista Crossover in Mountain View to Line 101 at MP 9.78 in Mountain View.
- 147 includes 20" and 24" OD 0.281", 0.313" and 0.25" WT, Grade B, SMLS and X 42, X-52 and X-60 DSAW pipes were installed in 1947 and connect line 132 (at the Edgewood Crossover east of Redwood City) to line 101 (near Old County Rd and Commercial Street in San Carlos).
- 8805-03 includes 16" and 10" OD, 0.219" and 0.25", 0.188" WT pipes. DFDS3645 (8" OD, 0.322" WT Grade B SMLS) installed in 1989 and X-6430 (16" OD, 0.281" WT, 6" OD 0.156 WT) installed in 1968. It taps off line 132 and runs to the Whisman/Middlefield reg station.

(See detailed segments listed in Section 3, except casings and earthen crossings are assessed elsewhere.) The LTIMP will be incorporated in Section 6 of IMP L-132_0.00, IMP 132A_0.00, 147_0.00 and 8805-03_0.00. The LTIMP is required by GSI (Gas System Integrity) Procedure RMP-06 Section 7 following integrity assessments. The pipelines in question were originally installed in various years and the maximum operating pressures (MOP) of the covered pipelines are 375 psig for Nseg132-2004. The detail pipe information and operating conditions are shown in Attachment 3. All information relevant to the threats identified in RMP-06 has been reviewed and addressed for the pipe segments in this document. The major threat to these sections of pipelines was corrosion. Since 1940s, various sections of Nseg 132-2004 have been replaced or relocated. The 1940's pipe is still representing a significant fraction, about 50% (26,107 ft.) and 1950s and 60s pipe 34% (18,070 ft.) of the total NSeg footage (52,392 ft).

The primary inspection method was DA see "Corrosion Survey Report, 2004, NSeg 132" Dated 16/6/2004. This inspection uncovered no immediate indication due to external corrosion. The DA assessment included close interval survey (CIS) and Pipeline Current Mapper (PCM) or direct current voltage gradient (DCVG). A sample size of 11 locations including: 6 "Scheduled", 3 "Monitored" and 2 "No Indications" were directly examined, no active corrosion was found on the lines. Although there were no indications required mitigation left on the pipeline, the Executive Summary for Nseg 132-2004 Survey Report recommended that a number of steps be taken, as

shown in Section 8 to maximize pipeline safety and the planned reassessment interval. The high priority recommended prevention/mitigation (P/M) task listing in Section 8 will be tracked in IMACS (Integrity Management Assessment Computer System).

2.0 BACKGROUND

NSeg 132-2004 consists of 84 HCA pipe segments with a length totaling 52,392 feet. The Integrity Management Plan contains the extent, relevant pipe properties, and threats associated with each segment of pipe. The corrosion survey was performed by Mears. The intent of this ECDA was to provide a baseline assessment for the threat of external corrosion and was performed in accordance with PG&E Procedure RMP-09 "Procedure for ECDA Inspection". The results of the ECDA were incorporated into GIS as shapefiles (Shared Drive V: "Walnutcrk01": \Integrity_Management_Themes\IMA\0_Nseg-132\132_2004\DA\All Pipeline Sections in Section 3)\CIS Reads, PCM Reads, DCVG Indications, etc.) for integration with surrounding features, risk mitigation planning, and review with later assessments.

In addition, locations of potential third party damage were also reviewed. Although third party damage was looked for, this threat is primarily managed through prevention and mitigation.

3.0 SCOPE

This NSeg 132-2004 report addresses the High Consequence Areas (HCAs) in following sections:

- 8805-03 (MP 0.00 to MP 0.56) and X6430 (Whisman & Middlefield Reg. Sta.) maintained by De Anza Division.
- 132A (MP 0.00 to MP 1.45) connecting L-132 and L-101 maintained by De Anza Division
- L-147 (MP 0.55 to MP 3.57) and DFDS3645, connecting L-132 and L-101, maintained by Peninsula Division.
- L-132 (MP 22.58 to MP 40.77) maintained by Peninsula Division.

The 84 covered segments (see Attachment 3, casings and earthen crossings are assessed in separate inspections.) are in IMAs L-132_0.00, IMP 132A_0.00, 174_0.00 and 8805-03_0.00 (see location plot in Attachment 3A). It is intended that this report augment the Integrity Management Plan to describe and provide documented support for prevention and mitigation decisions and reassessment schedules for the subject IMAs.


4.0 PROCESS

This Long Term Integrity Plan was developed using a team of engineers with varied expertise to review the assessment results of the ECDA conducted by Mears with integrated information about the pipe, past assessments and inspections, and surroundings to determine the most appropriate prevention and mitigation actions and a reassessment date. The review was generally conducted utilizing GIS with hardcopy information available for reference when information about recent

inspections was necessary. Working together the team reviews GIS information, ECDA data and report, and data from other sources for threats, while looking for opportunities to mitigate threats and reduce risk. The checklist provided in Attachment 1 of this report was used to ensure that the review encompassed the necessary considerations.

5.0 REVIEW TEAM

The primary review team consisted of the following personnel:

Name	Expertise relevant to Review
	Risk/Integrity Management
	Risk/Integrity Management
	Corrosion / Cathodic Protection
	Corrosion / Cathodic Protection
	Pipeline Engineer

6.0 DATA GATHERING & INTEGRATION

Summary data relevant to determining risk, identifying applicable threats, and selecting assessment methods is contained in the GT&D GIS and was used in this review. In addition to the default Server Pipeline Database and land base, Table 1 shows the additional shapefiles and layers that were also used in the review:

Hardcopies of the following reports were available and referenced when more detailed information about the assessment or inspection was required:

- Corrosion Survey Report 2004, NSeg 132, Dated 12/6/04
- Executive Summary for Nseg 132-2004 Survey, Change #1, Dated 5/28/2009

TABLE 1		
Description	Name	Location
Default Server Database ¹	N/A	
CIS Data	Nseg 132 CIS Reads	Shapefile: V:\Integrity_Management_themes\IMA\0_NSEG-132\132_2004\DA
DCVG Data	Nseg 132 DCVG Reads	Shapefile: V:\Integrity_Management_themes\IMA\0_NSEG-132\132_2004\DA
PCM Data	Nseg 132 PCM Reads	Shapefile: V:\Integrity_Management_themes\IMA\0_NSEG-132\132_2004\DA
Soil Resistivity Data	Nseg 132 Soil Resistivity Reads	Shapefile: V:\Integrity_Management_themes\IMA\0_NSEG-132\132_2004\DA
Soil Data	CAXXX	\\walnutcrk01\SysIntegrity\DA\WLA\Soil_surveys\County\CAXXX.shp
Pipelines w/ high potential for third party damage	mag_loc.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\3rdParty'
Erosion	erosion.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\GEOLOGY\SEISLIQ\STATEWID'
GM - Faults	pgefaults.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\GEOLOGY\SEISLIQ\STATEWID\GeoHarzards Current'
GM - Landslides	Landslides.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\GEOLOGY\SEISLIQ\STATEWID\GeoHarzards Current'
GM - Unstable Slopes	Siprev_pipebuff_nad83.SHP	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\GEOLOGY\SEISLIQ\STATEWID\GeoHarzards Current'
GM -Liquefaction	Liqrev_nad83.SHP	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\GEOLOGY\SEISLIQ\STATEWID\GeoHarzards Current'
Foreign Pipelines (Data from NPMS)	co_wopge.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\FOREIGN\All other Foreign\npms
Foreign Pipelines (Data from Commercial Database)	crupipe.arc, lpgpipe.arc, miscpipe.arc, natpipe.arc, refpipe.arc	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\FOREIGN\All other Foreign\MSCA1197
Electric Transmission	etran_line.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\Electric Trans\Elec Trans Line
BART Rail lines	raillines.shp	Shared Drive 'Walnutcrk01:\ENG\LIBRARY\GISDATA\BART
Parcel Data	Alameda.prcl_pic.shp Contra Costa.prcl_pic.shp	Shapefile: Walnutcrk01\Mapping\Integrity Managment Plans\HCA determination\Parcels_in_PIC_by_County

Notes:

- 1 For the Default Server Database, the following layers were loaded and available for review. CP, Aform, Hform, Valve, Station, Station Opdla, Pipeline (legendized based on HCA_ID), Inactive Pipe, all landbase layers except pge_devision, Pipe Repair, Proposed Work, Construction Reports, and Pipe (Foreign)

7.0 REVIEW

The review team worked together to develop the LTIMP. The first step in the process was to review the assessed scope vs. the intended scope. Per Nseg 132-2004 Inspection Final Report dated 12/6/2004, the inspected sections (scope) are consistent with the pipe segments described in Section 3. Attachment 2 shows notes of the review, the locations are described by CIS stations and/or mile points (MP).

ASME B31.8S is designed to guide users in managing the system integrity of gas pipelines. The nine threat categories identified in this supplement are used below to evaluate threats to Line NSeg 132-2004. Mitigating actions to address some of these risks are noted with more detailed proposals outlined in Attachment 1. A segment by segment review of the pipeline with more detailed information about the various attributes contributing to the overall threat to the pipeline (see RMP 06) is contained in the 2008 Gas Transmission System Wide Risk Analysis.

External Corrosion (EC) Threat:

Because it is made of a corrodible material, NSeg 132-2004 is considered to be at risk from external corrosion. All leak record and main inspection form data (A-Forms) in GIS were reviewed in assessing the severity of the threat. There was one corrosion leak (L-147 MP 2.86 in 1991) on this Nseg covered pipeline segments. The original coating on all covered pipeline segments was hot applied asphalt (HAA) and the replacement pipes were coated with Tape (see Attachment 3). The records show the earliest cathodic protection (CP) on L-132 and adjacent pipelines are in 1960. CP on the older sections of this pipeline prior to 1960 was undetermined. However, the pipeline may be still under CP with uneven effectiveness. The CIS of the line provided confirmation of the current CP effectiveness on the line and showed where it needed to be enhanced. See the mitigation plan in Section 8 for details.

Internal Corrosion (IC) Threat:

There is no pipe segment in NSeg 132-2004 have been identified with IC threats and no internal indications were found during the IC inspection of this Nseg, therefore, no IC mitigation is needed at this time. However, a further review of pipeline liquid downstream of Milpitas to Peninsula (including L-109, L-101 and L-132) is currently undergoing. When the result is finalized, the IC threat will be updated.

Stress Corrosion Cracking (SCC) Threat:

No part of IMA NSeg 132-2004 line is currently considered to be susceptible to SCC (all points are more than 20 miles downstream of a compressor station and no segments operate at more than 60% SMYS), never-the-less SCC was checked for in some sample bell hole examination and no SCC damage was found.

Manufacturing Threat (Pipe Seam and Pipe):

8805-03 and X6430 with unknown pipe, enable the manufacturing threat. Per 49 CFR Part 192.917 (4), we reviewed the MOP of these segments, see following table, going forward the MOP of these lines will be 375 psig. From A Forms in GIS our pipeline survey sheets (which have been carried over into GIS), there is no long seam failure or leak on the covered NSeg 132-2004 segments. There were no leaks

referencing material or manufacturing failure that had occurred since this pipeline was installed.

(V:\Documentation\Weld Const Material Threats\MOPSeamIssues\Penninsula Division\Section 6.0 SCADA data)

Pipeline Sections	From 12/15/1999 to 12/15/2004	From 12/15/2004 to Current
L-132A Sierra Vista Ave Crosstie to Rengstorff Ave Sta. Station	402 psig (12/11/2003)	375 psig
L-147 Edgewood Road Crosstie to L-101 at Commercial Station.	402 psig (12/11/2003)	375 psig
DFM 8805-03 and X6430	403 psig (12/11/2003)	400 psig

Construction threat (Pipe Girth Weld, Fabrication Weld, Wrinkle Bend or Buckle, Stripped Threads/Broken Pipe/Coupling, Shop Fabricated Miter Bend,):

There is 3,590 feet of the original L-132A pipe installed in 1944 still in service. Due to a concern for potentially non-ductile girth welds failure, pipes installed before 1947 are assumed to have non-ductile girth welds. Reviewing the A Form found no girth weld leak in this Nseg segments. Going forward, this threat will be addressed by preventative measures for future pipe line excavations (See Gas Information Bulletin 151 Rev. 2 – Preventing Mechanical Damage to Gas Transmission Lines.) In addition, Shop Fabricated Miter Bends similar to those on L-109 also exist on L-132, L-132A and L-147. From the internal pipeline NDE system (IPNS) pull pig inspection of L-109 pipe on the girth welds (GWs) in 1996 and 1998. All the Miter Bends within the inspected pipeline sections were replaced with regular elbow segments due to poor weld quality. The inspection results of the miter bends and the GWs will be considered in the construction threat algorithm of the future risk calculations. The same risk will be considered for these miter bends and GWs. The inspection results of the miter bends and the GWs will be considered in the construction threat algorithm of the future risk calculations.

Equipment Threat:

Equipment on this line consists primarily of San Francisco Load Cender, Martin Station, Milpitas Terminal, regulator stations, main line valves and services. Equipment threats are addressed through normal maintenance and no additional preventative measures are contemplated for this pipeline at this time. For seismic emergency responses, there is a control valve located where the Half Moon Bay DFM is tapped into TL-132 and 132 (east of the fault). It trips on excess flow and low pressure. It is maintained more frequently than the annual requirement.

3rd Party Damage Threat:

NSeg 132-2004 has similar 3rd party damage threat as other pipelines in HCAs. A review of A-forms reveals one 3rd party dig-in on NSeg 132-2004 segments (L-147 MP 0.61 in 1970). Line markers, PG&E's standby policy and PG&E's notification to

customers along the pipeline ROW supplement existing USA (Underground Service Alert) requirements that help protect this pipe.

Incorrect Operations Threat:

This is assumed to be a threat for all pipelines. For NSeg 132-2004, it is addressed with current operator training requirements and division emergency response training. There are no special training requirements associated with operating this pipeline. Pressures on this line are monitored 24 hours a day and 7 days a week (24-7) by the SCADA system at PG&E centers in San Francisco and Brentwood. Gas transmission lines L-101, L-109 and L-132 supply gas from Milpitas Terminal to the San Francisco Peninsula. Generally, L-109 and L-132 run close to each other up the middle of the Peninsula and have many crossties. L-101 follows the eastern shoreline and is crosstied to L-109 and L-132 through L-147 and L-132A. Through the crossties the three transmission lines can support each other in case of interruption of one of the lines

Weather Related Outside Force Threat: GM (Earthquake Faults, Landslides, Floods, etc)

Seismic retrofit project 1994 & 1995 relocated pipe to avoid crossing San Andreas fault near MP 38.4. However there are still two L-132 San Andreas fault crossings at MP 38.00 and MP 37.86 (on segment 178.05). The San Andreas fault is a major active earthquake fault. These two fault crossings are high priority items on the Transmission Pipeline Fault Crossings List and project funding is requested in 2011 budget to mitigate these crossings. There are no other significant fault crossings for this Nseg.. The maximum ground accelerations around NSeg 132-2004 segments varies and they are expected to be up to 0.7g for L-132 MP 30.00 to MP 41.00, and 0.5g to 0.6g for the rest of the pipelines, all due to the San Andreas faults earthquake scenario. The pipeline also passes through several areas identified as having some low to moderate liquefaction potential. There are some segments of pipe that pass through areas identified as having moderate, and moderate to high, landslide risk which will be addressed through our current practice of patrolling the pipeline in search of any kind of unusual activity that might need to be addressed. It is believed normal patrolling will allow adequate time to respond to any developing landslide, however, to respond to potential landslides due to heavy rainfall, a rainfall response plan (RMI-04A) may call for additional patrols after rainfall reaches the threshold. In addition, to respond to earthquakes across the service territory, a gas transmission response plan (RMI-04) for earthquakes has been developed.

Hard Spot Threat

No segments on this line are currently considered susceptible to the HS threat and there was no history of hard spot failure on this line. Because of this fact, no special hard spot assessment of this line was performed. The current version of CFR 192 and B31.8S do not require assessment of this threat, and it was not looked for in this assessment.

8.0 RECOMMENDED PREVENTION/MITIGATION

Prevention/Mitigation measures recommended in this report are in addition to the Systemwide prevention/mitigation activities described in RMP-06. The mitigation strategy was based on the data gathered in the Integrity Assessment Review Notes

in Attachment 2, the data integrated from sources described in Section 6.0, and a review process as described in Section 7.0. In addition, the considerations of the LTIMP Checklist (Attachment 1) were used to establish the appropriate prevention and mitigation strategies. Priority for performing the P/M Recommendations were based on the perceived safety risk and code compliance requirements. Generally, recommendations that were needed to be implemented before a thorough P/M Plan could be developed, or where higher risk conditions needed remediation were given high priority.

High Priority P/M Recommendations			
Location	Priority/Reason	Task	Conclusions/Recommendations
See High Priority P/M Recommendations Items in Attachment 4: Executive Summary for Nseg132-2004 Final.doc	See High Priority P/M Recommendations Items in Attachment 4: Executive Summary for Nseg132-2004 Final.doc	All High Priority P/M Recommendations tasks in Attachment 4: Executive Summary for Nseg132-2004 Final.doc	The tasks will be completed by the Corrosion Group before 10/2/2009. (Lee will review and update the Executive Summary Report.)

Other P/M Recommendations			
Location	Priority/Reason	Task	Conclusions/Recommendations

Repairs and replacements shall be performed per the applicable GT&D standards.

9.0 RECOMMENDED REASSESSMENT SCHEDULE

Per NSeg 132-2004 inspection, the reassessment interval is 6.4 years (Per Attachment 4: Executive Summary the reassessment date is 2/25/2011. Form K used SMYS = 45 Ksi for remaining life calculations which is consistent with GIS data. Therefore, the shortest re-inspection interval of 6.4 years was selected for the next inspection. The team believes both ILI and DA are suitable assessment methods for this pipeline. The team selected the DA method for the next inspection and the re-assessment date was set on 2/25/2011, (It is 6.4 years from the Direct Examination Starting Date 10/3/2004.) as required by RMP-06 Section 7.

10.0 Description of Changes

The following table provides a detailed description of changes to this Integrity Management Plan:

REV	Change	Reason for Change
0	Initial Issue of LTIMP	N/A
1		
2		
3		

Attachment 1 LTIMP Checklist				
Category	Item	Checklist	Status	Notes
Data Gathering and Integration	A.1	Integrity Management Plan for the IMAs included in this NSeg pulled from files and available for review with GIS data.	Done (7/9/09)	Made available for reference. (IMPs 132_0.00, 132A_0.00, 147_0.00 and DFM 8805-03_0.00)
	A.2	A and H Form Themes are visible during review	Done (7/9/09)	A Forms and some H Forms were loaded into GIS project (N-seg 132-2003&2004.mxd), made visible while panning, and referenced to get better insight into historical issues and current conditions. Because not all of the H Forms were in GIS at the time of this review, hardcopies of some of the forms were referenced from hard copies of inspection reports.
				(N-seg 132-2004&2003.mxd) - DA Assessment Theme: Shared Drive 'Wainutork01 \Mapping\ Integrity_Management_themes\IMAO_Nseg-132\132_2004\DA'
				1. 132mp22.58-24.25_(CIS Reads, DCVG indications, PCM Reads) 2. 132 mp29.23-29.37_(CIS Reads, DCVG indications, PCM Reads) 3. 132 mp30.50-31.30_(CIS Reads, DCVG indications, PCM Reads) 4. 132 mp30.96-31.01final_(CIS Reads, DCVG indications, PCM Reads) 5. 132 mp31.11-31.16final_(CIS Reads, DCVG indications, PCM Reads) 6. 132 mp31.60-32.46 CIS Reads, DCVG indications, PCM Reads) 7. 132 mp33.48-33.89fina_(CIS Reads, DCVG indications, PCM Reads) 8. 132 mp34.30-35.03_(CIS Reads, DCVG indications, PCM Reads) 9. 132 mp34.56-34.64final_(CIS Reads, DCVG indications, PCM Reads) 10. 132 mp35.03-35.11final_(CIS Reads, DCVG indications, PCM Reads) 11. 132 mp37.42-37.67fina_(CIS Reads, DCVG indications, PCM Reads) 12. 132 mp37.71-37.80final_(CIS Reads, DCVG indications, PCM Reads) 13. 132 mp37.80-40.77_(CIS Reads, DCVG indications, PCM Reads) 14. 132a mp0.00-1.45_(CIS Reads, DCVG indications, PCM Reads) 15. 147 mp1.87final_(CIS Reads, DCVG indications, PCM Reads) 16. 147gisexport1_(CIS Reads, DCVG indications, PCM Reads) 17. 8805-03 mp 0.00-0.56_(CIS Reads, DCVG indications, PCM Reads) 18. dfis3645_mp0.00-0.01final_(CIS Reads, DCVG indications, PCM Reads)
	A.3	All past assessments identified, integrated in GIS, legendized appropriately, and visible for review while panning results (In Notes provide themes and location of themes)	Done (7/9/09)	Note: Hardcopies of the following reports were available and referenced when detailed inspection results were necessary: • Corrosion Survey Report 2004, L-132, Dated 12/6/2004
	A.4	Remediations are incorporated into GIS	In Progress (7/9/09)	See Section 8 for the recommended P/M items
	A.5	Studies/Reports available on the section of pipe are available for consideration during review (In Notes Provide References) (Ensure that Root Cause analysis reports are considered.)	Done (7/9/09)	Root Cause analysis, Executive Summary Report referenced from original NSeg-132_2004 Report.

Attachment 1 LTIMP Checklist				
Category	Item	Checklist	Status	Notes
	A.6	Pipe Properties theme visible and legendized based on HCA_ID	Done (7/9/09)	N-seg 132-2004.mxd - GIS Pipeline Layer used to provide properties.
	A.7	Risk Theme loaded and available for consideration during panning		
	A.7.a	Theme of Pipelines identified by field as having a higher level of risk from third party damage loaded and visible (mag_loc)	Done (7/9/09)	N-seg 132-2004.mxd - See breakdown items below.
	A.7.b	Foreign Line Themes loaded and visible (In Notes provide themes used)	Done (7/9/09)	Pipelines w/ potential for third party damage - Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ 3rdParty \ mag_loc.shp Foreign Pipelines - Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ FOREIGN \ All other Foreign \ nems \ co_wopge.shp in addition the following layers from Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ FOREIGN \ All other Foreign \ MSCA1197 : crupipe.arc, lpgpipe.arc, miscpipe.arc, natpipe.arc, retpipe.arc
	A.7.c	Geotechnical hazards loaded and fault theme, landslide, and erosion themes visible. (Other themes shall be made visible as appropriate.)	Done (7/9/09)	Ground Movement Issues - Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ GEOLOGY \ SEISLIQ \ STATEWID \ erosion.shp & pgefaults.shp & Landslides.shp & SLP.SHP & LIQ.SHP
	A.7.d	Electric Transmission Lines Theme loaded and Visible	Done (7/9/09)	Electric Transmission Lines - Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ Electric Trans \ Elec Trans Line \ etran_line.shp
	A.7.e	Railines Theme Loaded and Visible	Done (7/9/09)	Bart Rail Lines - Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ BART \ railines.shp
	A.8	USA Information loaded and available for consideration during panning	Done (7/9/09)	Shared Drive 'Walnutcrk \ Cgt \ ENG \ ENG \ LIBRARY \ GISDATA \ 3rdParty \ usatags.mdb
	A.9	Aerial Photography is available and utilized during review.	Done (7/9/09)	Imageconnect used for a majority of the images.
	A.10	Parcel Data Loaded and available for review to verify extent of HCA's	Done (7/9/09)	Parcel Data - Shared Drive 'Walnutcrk01 \ Mapping \ Integrity Management Plans \ HCA determination \ Parcels_in_PIC_by_County \ COosta (and Alameda)_prol_pic.shp
	A.11	PIC Tool Results loaded and available for review to verify extent of HCA's	Done (7/9/09)	PIC Tool Data - Shared Drive 'Walnutcrk01 \ Mapping \ Integrity Management Plans \ HCA determination \ HCAs_per_PICtool_by_County
Review / Analysis / Recommendations	B.1	Verify that the assessment covers the intended scope of assessment using appropriate tool. (Refer to GIS)	Done (7/9/09)	Entire scope of IMP assessed by ECDA.
	B.2	If ILLI check for Internal Corrosion damage reported. If damage reported, ensure that the route and segment are included in the IMP/BAP/IMACS/ and Threat Spreadsheets as an Internal Corrosion Threat. If applicable, scope out extent of threat application.	NA	This report doesn't cover ILLI sections.

Attachment 1 LTIMP Checklist				
Category	Item	Checklist	Status	Notes
	B.3	If ECDA, check for identification of Internal Corrosion threat/damage, SCC damage, and selective seam weld damage. If damage reported, ensure that the route and segment are included in the IMP/BAP/IMACS/ and Threat Spreadsheets as a Internal Corrosion Threat. If applicable, scope out extent of threat application.	NA	No IC or hard spot were found. See IC report ? [REDACTED].
	B.4	Using GIS, pan through integrated data, analyze, and establish desired prevention and mitigation measures. In addition to the data integrated and reviewed in Items A.1 to A.11, ensure that the following risk mitigation strategies are considered:		(Develop spreadsheet of pipeline location reference, issue, discussion and recommendation. Record in the form of meeting minutes.)
	B.4.a	While panning, review HCA to ensure that it looks appropriate.	Done (7/9/09)	Latest aerial photography used via Global Explorer. Extent of all HCA's appeared to be appropriate.
	B.4.b	Improved cathodic protection – Recoat, addition or alteration of rectifiers, anodeflex, etc.	Done (7/9/09)	(See Attachment 2 – Notes)
	B.4.c	Improved resistance to Third Party damage (Improved Line Marking, Landowner Notification, additional public awareness efforts, increased cover, thicker pipe, relocation)	Done (7/9/09)	
	B.4.d	Implementing additional inspection and maintenance programs.	Done (7/9/09)	Additional inspections shall be scheduled to verify that CP is within acceptable limits. Regarding Maintenance, there may be additional rectifiers, ETS's, and coupons, installed as part of the investigation proposed by the Corrosion Engineer. Monitoring of these new items will be required. PLM will be updated to reflect these changes at the conclusion of the investigations.

Attachment 1 LTIMP Checklist			
Category	Item	Checklist	Status
			Done (7/9/09)
	B.4.e	Installation of Automatic Shut-off Valves or Remote Control Valves	<p>There are 9 Mainline Valves at (MPS25.6, 29.05, 31.93, 38.49, 40.05, 40.08, 43.61, 46.59 and 48.43) can be used to isolate the pipeline sections in between in case of emergency. The valve spacings are in compliance with class location requirements.</p> <p>Note: A review of the environment that the line operates in reveals that there are no unique conditions or characteristics which may lead one to believe that the length of time necessary to respond to a rupture will increase the likelihood of harm to population around the pipeline (such as due to large structures weakened by exposure to heat) or increase the likelihood of a failure due to areas of unique geologic features which may increase the likelihood of failure. In addition, because:</p> <ul style="list-style-type: none"> • Most of the damage to property and risk to human safety occurs immediately or shortly thereafter, • The immediate energy release has little or nothing to do with the location of valves, • The rate of release from a rupture decreases exponentially, • A leak or rupture may not immediately trigger a ASV, • The leak will continue for a long period of time regardless of the valve location. <p>Additional ASV's and RCV's are not recommended for the IMAs within this NSeg.</p>
	B.4.f	Installation of computerized monitoring and leak detection systems (SCADA)	Done (7/9/09)
	B.4.g	Providing additional training to personnel on response procedures	Done (7/9/09)
	B.4.h	Conducting drills with emergency responders	Done (7/9/09)
Determine Reassessment Schedule	C.1	Calculation of reassessment interval based on data integration as shown in A.1 to A.14	Done (7/9/09)
	C.2	Calculation of reassessment interval based on risk	NA
	C.3	Calculation of reassessment interval based on threats	NA
			Form K by [REDACTED]
			NA
			NA
			<p>In addition, there are also pressure sensors at Milpitas Terminals and San Francisco Load Center to monitor this section of pipeline.</p> <p>As a requirement of RMP-12 "Pipeline Public Awareness Plan", Transmission Districts conduct an annual emergency response meeting and invite Local and State Emergency Responders to attend.</p> <p>As a requirement of RMP-12 "Pipeline Public Awareness Plan", Local and State Emergency Responders are invited to participate in annual internal emergency drills.</p>

Attachment 1 LTIMP Checklist				
Category	Item	Checklist	Status	Notes
	C.4	Calculation of reassessment interval based on § 4.9 of RMP-06		
	C.4.a	ILI	NA	NA
	C.4.b	ECDA	NA	LTIMP Team
	D.1	Description of process completed and incorporated into IMP	Done (7/9/09)	
Documentation	D.2	Description of recommendations for preventive and mitigative measures. Rank priority of measures based on risk.	Done (7/9/09)	
	D.3	Description of recommended additional investigation.	Done (7/9/09)	
	D.4	IMP Revised and Approved by Manager of System Integrity	(XX/XX/06)	
	D.5	Update of IMACS to track that preventive/mitigative and investigative efforts are completed and completed as risk indicates. (Pipelines that have been identified as similar and requiring preventive and mitigative measures shall also be entered into IMACS.)	(XX/XX/06)	
	D.6	BAP / GIS / IMACS / and Threat Spreadsheet revised to reflect next assessment plan.	In Process	GIS and threat spreadsheet updated, BAP and IMACS are in the process of revision 4A.
	D.7	Consideration to Prevention and Mitigation measures to pipeline segments that may have similar material and environmental characteristics.	Done (7/9/09)	

Attachment 2 LTIMP REVIEW NOTES

Location	Date	Notes	Action
See High Priority P/M Recommendations Items in Attachment 4: Executive Summary for Nseg132-2004 Final .doc	7/15/2009	See High Priority P/M Recommendations Items in Attachment 4: Executive Summary for Nseg132-2004 Final .doc	Corrosion group will review and prioritize the recommended mitigations as shown in Attachment 4. [REDACTED] please adding 1) DFM 8805-03. 2) Planned completion date for the P/M items in the Executive Summary and 3. (Done, [REDACTED] revised Executive Summary on 9/24/09.)
Nseg132-2004 Final .doc			
L-132 MP 37.80 to MP 38.39	7/15/2009	From GIS it was noted the pipeline crosses San Andreas Fault twice at this location.	[REDACTED] will set up a project and funding to review the fault crossing in 2011 (See Section 7 for more details). (Done)
General	7/15/2009	According to Attachment 3, there are segments in L147, 132A, DFM 8805-03 and X6430 which do not have pipe specifications and the hydrotest records.	[REDACTED] will check the pre-assessment record and [REDACTED] will check old job file for the pipe specifications. L147 segments pipe specification was assume to be GRB SMLS 35 Ksi and 0.312" WT (See [REDACTED] E-mail on 10/07/09).
L-132 Station 42+49	7/15/09	Form K use SMYS of 35 Ksi for remaining life calculation is inconsistent with GIS data of 45 Ksi. These segments was inspected but not counted in GIS database.	Lee checked and revised the calculations using 45 Ksi. (Done, [REDACTED] revised Form K.)
L-132 segments 171.03 HCA segments	7/15/2009		[REDACTED] will talk with [REDACTED] to include this segment in Nseg 132 2004. (Done, on 10/12/09)
DFM 8805-03 segment 305	7/15/2009	Downstream of Whisman Reg. Sta. the MOP should be 175 psig. This segment should be changed to Non-HCA.	[REDACTED] will talk to [REDACTED] to make the change. Done.

Attachment 3 Nseg 132-2004 Segments List.xls

Attachment 4 Executive Summary for Nseg132-2004 Final Sep 2009.doc

Item No.	IMA NAME	ROUTE	SEGMENT NO	MP1	MP2	INTEFF	GIRTH WELD	LONG S EAM	JOINT_ TYPE	SMYS THICK OD	TEST PRESS	TEST DUR	SMYS_ MOP	COAT_1 YPE	COND	JOB NO	YR INSTALL	FOOTAGE	
1	132 0.00	132	160.01	22.53	22.64	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	258	
2	132 0.00	132	160.05	22.64	22.76	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	36.0 HAA	G	85737	11/1947	649	
3	132 0.00	132	160.06	22.76	22.83	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	354	
4	132 0.00	132	160.07	22.83	22.91	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	439	
5	132 0.00	132	160.1	22.91	22.98	1.000	ARC	SMLS	BUTT	42000 0.312	24.000	670	375	36.6 TAPE	G	165868	11/1967	357	
6	132 0.00	132	160.2	22.98	23.00	1.000	ARC	SMLS	BSCR	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	186	
7	132 0.00	132	160.7	23.00	23.42	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	2284	
8	132 0.00	132	161.6	23.84	24.17	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	1717	
9	132 0.00	132	161.7	24.17	24.22	1.000	ARC	DSAW	BUTT	45000 0.281	24.000		375	38.0 HAA	G	85737	11/1947	349	
10	132 0.00	132	169.3	29.23	29.37	1.000	ARC	DSAW	BUTT	52000 0.313	30.000	905	375	36.9 TAPE	G	174745	11/1971	746	
11	132 0.00	132	171	30.67	30.96	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	1544	
12	132 0.00	132	171.04	31.16	31.68	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	2629	
13	132 0.00	132	171.05	31.65	31.73	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	423	
14	132 0.00	132	175.1	34.64	35.03	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	2096	
15	132 0.00	132	178.05	37.80	38.39	1.000	ARC	DSAW	BUTT	52000 0.313	36.000	821	375	44.3 HAA	G	159638	11/1964	3464	
16	132 0.00	132	178.2	38.39	38.39	1.000	ARC	DSAW	BUTT	60000 0.313	24.000	1407	375	25.6 TAPE	G	1958719	11/1995	25	
17	132 0.00	132	178.1	38.39	38.39	1.000	ARC	DSAW	BUTT	60000 0.547	36.000	1407	375	21.9 TAPE	G	1958719	11/1995	4	
18	132 0.00	132	178.3	38.39	38.40	1.000	ARC	DSAW	BUTT	60000 0.500	30.000	1431	375	20.0 TAPE	G	1958719	11/1995	31	
19	132 0.00	132	178.4	38.40	38.40	1.000	ARC	DSAW	BUTT	60000 0.500	24.000	1082	375	16.0 TAPE	G	1958719	11/1995	19	
20	132 0.00	132	178.5	38.40	38.68	1.000	ARC	DSAW	BUTT	60000 0.500	24.000	1431	375	16.0 TAPE	G	1958719	11/1995	1279	
21	132 0.00	132	178.6	38.68	38.93	1.000	ARC	DSAW	BUTT	60000 0.313	24.000	1431	375	25.6 TAPE	G	1958719	11/1995	1316	
22	132 0.00	132	178.7	38.93	38.93	1.000	ARC	DSAW	BUTT	60000 0.375	30.000	1407	375	26.7 TAPE	G	1958719	11/1995	5	
23	132 0.00	132	179.3	38.93	39.00	1.000	ARC	DSAW	BUTT	52000 0.313	30.000		375	36.9 HAA	G	151181	11/1961	354	
24	132 0.00	132	179.6	39.00	39.04	1.000	ARC	DSAW	BUTT	52000 0.313	30.000		375	36.9 HAA	G	151181	11/1961	211	
25	132 0.00	132	180	39.04	39.37	1.000	ARC	SMLS	BUTT	42000 0.375	30.000		375	38.1 HAA	G	136471	11/1956	1742	
26	132 0.00	132	181	39.37	39.49	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	610	
27	132 0.00	132	181.2	39.49	39.49	1.000	ARC	DSAW	BUTT	60000 0.375	30.000	1407	375	26.7 TAPE	G	1958719	11/1995	6	
28	132 0.00	132	181.3	39.49	39.50	1.000	ARC	DSAW	BUTT	60000 0.500	24.000	1407	375	16.0 TAPE	G	1958719	11/1995	28	
29	132 0.00	132	181.4	39.50	39.53	1.000	ARC	DSAW	BUTT	60000 0.500	24.000	1448	375	16.0 TAPE	G	1958719	11/1995	517	
30	132 0.00	132	181.5	39.53	39.54	1.000	ARC	DSAW	BUTT	60000 0.500	24.000	1407	375	18.0 TAPE	G	1958719	11/1995	33	
31	132 0.00	132	181.6	39.54	39.54	1.000	ARC	DSAW	BUTT	52000 0.375	30.000	1407	375	30.8 TAPE	G	1958719	11/1995	6	
32	132 0.00	132	181.8	39.54	39.58	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	200	
33	132 0.00	132	182.3	39.58	39.65	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	128826	11/1954	360	
34	132 0.00	132	182.6	39.65	39.72	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	367	
35	132 0.00	132	182.9	39.72	39.85	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	681	
36	132 0.00	132	183	39.85	40.00	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	769	
37	132 0.00	132	183.3	40.00	40.08	1.000	ARC	DSAW	BUTT	52000 0.375	30.000		375	30.8 HAA	G	98015	11/1948	422	
38	132 0.00	132	183.6	40.08	40.09	1.000	ARC	DSAW	BUTT	60000 0.360	30.000	949	8	375	27.8 TAPE	G	170265	11/1969	22
39	132 0.00	132	184	40.09	40.58	1.000	ARC	DSAW	BUTT	60000 0.360	36.000	949	8	375	33.3 TAPE	G	170265	11/1969	2614
40	132 0.00	132	184.3	40.58	40.66	1.000	ARC	DSAW	BUTT	52000 0.360	36.000	949	8	375	38.5 TAPE	G	170265	11/1969	417
41	132 0.00	132	184.6	40.66	40.69	1.000	ARC	DSAW	BUTT	52000 0.406	36.000	949	8	375	34.1 TAPE	G	170265	11/1969	148
42	132 0.00	132	184.9	40.69	40.77	1.000	ARC	DSAW	BUTT	52000 0.360	36.000	949	8	375	38.5 TAPE	G	170265	11/1969	437
43	132 0.00	132	185.2	40.77	40.77	1.000	ARC	DSAW	BUTT	52000 0.360	30.000	949	8	375	32.1 TAPE	G	170265	11/1969	11
44	147 0.00	147	105.2	0.96	0.95	1.000	ARC	DSAW	BUTT	52000 0.281	24.000	860	375	30.8 TAPE	G	174458	11/1972	732	
45	147 0.00	147	105.3	0.95	1.04	1.000	ARC	SMLS	BSCR	35000 0.281	24.000	98	375	45.8 HAA	G	85737	11/1947	472	
46	147 0.00	147	105.6	1.04	1.06	1.000	ARC	DSAW	BUTT	60000 0.271	24.000	910	7	375	27.7 TAPE	G	174458	11/1972	196
47	147 0.00	147	105.8	1.08	1.13	1.000	ARC	DSAW	BUTT	60000 0.271	24.000	910	7	375	27.7 TAPE	G	174458	11/1972	270
48	147 0.00	147	106	1.13	1.46	1.000	ARC	DSAW	BUTT	42000 0.313	24.000	900	3	375	34.3 HAA	G	163739	11/1966	1782
49	147 0.00	147	107.4	1.81	1.87	1.000	ARC	DSAW	BUTT	35000 0.281	24.000	98	375	45.8 HAA	G	85737	11/1947	355	
50	147 0.00	147	107.7	1.87	1.92	1.000	ARC	DSAW	BUTT	35000 0.281	24.000	98	375	45.8 HAA	G	85737	11/1947	249	
51	147 0.00	147	108	1.92	2.07	1.000	ARC	SMLS	BUTT	42000 0.313	20.000	750	1	375	28.8 HAA	G	139349	11/1957	807

Item No.	IMA NAME	ROUTE NO	SEGMENT NO	MP1	MP2	JNTEFF	GIRTH WELD	LONG S EAM	JOINT TYPE	SMYS THICK	W	TEST PRESS	TEST DUR	MOP	SMYS MOP	COAT_T YPE	COND	JOB NO	YR INSTALL	FOOTAGE
52	147 0.00	147	109	2.07	2.32	1.000	ARC	SMLS	BUTT	35000	0.250	20,000	750	1	375	42.9 HAA	G	136776	1/1/1967	1330
53	147 0.00	147	109.3	2.32	2.35	1.000	ARC	SMLS	BBCR	35000	0.313	20,000	98		375	34.3 HAA	G	85737	1/1/1947	160
54	147 0.00	147	109.6	2.35	2.36	1.000	ARC	SMLS	BUTT	35000	0.250	20,000	100		375	42.9 HAA	G	118982	1/1/1955	27
55	147 0.00	147	110	2.36	3.24	1.000	ARC	SMLS	BBCR	35000	0.313	20,000	98		375	34.3 HAA	G	85737	1/1/1947	4683
56	147 0.00	147	110.3	3.24	3.26	1.000	ARC	SMLS	BUTT	42000	0.250	20,000	620	1	375	35.7 HAA	G	438933	1/1/1967	107
57	147 0.00	147	110.6	3.26	3.28	1.000		SMLS		35000	0.312	20,000			375	34.3		85737	1/1/1947	105
58	147 0.00	147	110.9	3.28	3.28	1.000		SMLS		35000	0.312	20,000			375	34.3				8
59	147 0.00	147	111	3.28	3.37	1.000	ARC	DSAW	BUTT	60000	0.313	24,000	1404	8	375	24.0 TAPE	G	4900833	1/1/1991	588
60	147 0.00	147	111.2	3.37	3.37	1.000		SMLS		35000	0.312	20,000			375	34.3		4900833	1/1/1991	4
61	147 0.00	147	111.3	3.37	3.40	1.000	ARC	DSAW	BUTT	52000	0.375	20,000	1050		375	19.2 TAPE	G	85737	1/1/1947	172
62	147 0.00	147	111.6	3.40	3.40	1.000	ARC	DSAW	BUTT	52000	0.313	20,000	1440	4	375	23.1 TAPE	G	1947977	1/1/1987	4
63	147 0.00	147	112	3.40	3.56	1.000	ARC	DSAW	BUTT	60000	0.313	24,000	1440	4	375	24.0 TAPE	G	1947977	1/1/1987	862
64	147 0.00	147	112.3	3.56	3.57	1.000	ARC	DSAW	BUTT	60000	0.375	24,000	1440		375	24.0 TAPE	G	1947977	1/1/1987	25
65	132A 0.00	132A	100.4	0.00	0.00	1.000	ARC	SMLS	BUTT	35000	0.375	12,750	1080	1	375	18.2 TAPE	E	7004524	1/1/1998	23
66	132A 0.00	132A	100.5	0.00	0.01	1.000	ARC	ERW	BUTT	52000	0.312	16,000	1080		375	18.5 TAPE	E	7004524	1/1/1998	21
67	132A 0.00	132A	100.6	0.01	0.09	1.000	ARC	SMLS	BBCR	45000	0.250	16,000			375	26.7 HAA	G	85737	1/1/1947	424
68	132A 0.00	132A	100.9	0.09	0.10	1.000	ARC	SMLS	BBCR	45000	0.313	24,000			375	32.0 HAA	G	73429	1/1/1944	57
69	132A 0.00	132A	101.2	0.10	0.15	1.000	ARC	DSAW	BUTT	52000	0.250	24,000	1080	24	375	34.6 TAPE	G	172327	1/1/1969	263
70	132A 0.00	132A	101.5	0.15	0.18	1.000	ARC	DSAW	BUTT	52000	0.250	24,000	1080	24	375	34.6 TAPE	G	171140	1/1/1969	137
71	132A 0.00	132A	102	0.18	0.29	1.000	ARC	DSAW	BUTT	52000	0.250	24,000	1080	24	375	34.6 TAPE	G	172327	1/1/1969	612
72	132A 0.00	132A	103.2	0.29	0.31	1.000		SMLS		40000	0.281	24,000			375	40.0				122
73	132A 0.00	132A	103.3	0.31	0.49	1.000	ARC	DSAW	BUTT	42000	0.250	24,000	690	8	375	42.9 TAPE	G	1922715	1/1/1981	1002
74	132A 0.00	132A	104	0.49	1.18	1.000	ARC	SMLS	BBCR	40000	-0.281	24,000			375	-40.0 HAA	G	73429	1/1/1944	3521
75	132A 0.00	132A	104.3	1.18	1.19	1.000	ARC	DSAW	BUTT	42000	0.281	24,000	983	8	375	38.1 TAPE	G	410451	1/1/1979	46
76	132A 0.00	132A	104.6	1.19	1.19	1.000	ARC	SMLS	BBCR	40000	-0.281	24,000			375	-40.0 HAA	G	73429	1/1/1944	12
77	132A 0.00	132A	105	1.19	1.24	1.000	ARC	DSAW	BUTT	42000	0.250	24,000	805	8	375	42.9 TAPE	G	179840	1/1/1973	257
78	8805-03 0.0	8805-03	301	0.00	0.03	1.000				42000	0.250	16,000			375	30.5 HAA		170206	7/18/1968	473
79	8805-03 0.0	8805-03	301.4	0.03	0.35	1.000				42000	-0.279	16,000			375	34.9 HAA		170206	7/18/1968	485
80	8805-03 0.0	8805-03	301.6	0.35	0.53	1.000				42000	0.281	16,000			375	27.1 HAA		170206	7/18/1968	575
81	8805-03 0.0	8805-03	306	0.54	0.55	1.000				42000	-0.168	16,750			375	27.2		432258	1/1/1966	50
82	147 0.00	DFDS36	101	0.00	0.01	1.000		SMLS		35000	0.322	8,625	610	1	-375	-14.3		4630798	1/1/1989	40
83	8805-03 0.0	8805-03	100	0.00	0.01	1.000				42000	0.281	16,000			375	27.1 HAA		170206	7/18/1968	70
84	8805-03 0.0	8805-03	101	0.01	0.01	1.000				-35000	-0.136	6,625			375	-24.3 HAA		170206	7/18/1968	7

Executive Summary for Nseg 132-2004 Survey

First Time Assessment ☐ Subsequent Assessment ☒

Report Change Log:

Change #	Change Date and Description	(Initial and Date)
0	Initial Draft	DJA 10/8/2007
1	Revised and adapted to new format	MMW 5/28/2009
2	Re-ran calculations for 45ksi	HLH 9/24/2009

Change #	Change Date and Description (Initial and Date)	(Initial and Date)

Route Description	Mile Points*
132	22.58 – 24.25
132	29.23 – 29.37
132	30.50 – 32.46
132	34.30 – 35.03
132	37.80 – 40.77
132A	0.00 – 1.45
147	0.55 – 3.57
8805-03	0.00 – 0.56

Route Description	Mile Points*

*Note that Casings, Spans, Water Crossings, Station Piping, and Bare Pipe within the scope of these mile posts are assessed separately as part of the respective year's region assessment.

Indirect Inspection Performed By	Mears
Indirect Inspection Tools Used	CIS, PCM, DCVG
Direct Examination Performed By	Mears
Indirect Report Received	5/4, 12/4 & 12/6/04
Direct Examination Start Date	10/3/04
Direct Examination Completion Date	3/1/05
Recommended CDA Date	2/25/2011
Recommended ECDA Date	2/25/2011

Work Scope: The high consequence areas (HCAs) associated with N-seg 132 listed in the table above. For details of the specific sections surveyed, see GIS maps tab.

This was the first time assessment for the subject HCAs. There were two Regions (1 and 2), which were non-shielding coatings and shielding coatings per GSAVE for this ECDA survey. We excavated 11 digs. For specific details see Compliance Documentation tab – Form G. Excavations were performed as follows:

Immediate Indications: No Immediate indications were found via the indirect surveys

Scheduled Indications: There were six schedule excavations examined. The initial survey on Route 147 station 95+67 showed an Immediate Indication. After Re-survey, the indication dropped to a Schedule Indication. No corrosion greater than 12% wall loss was discovered. The minimum SFcorr was calculated to be 3.09, which is high enough to reprioritize all of the Schedule Indications to Monitor Indications.

Monitor Indications: There were three Monitor excavations examined. The initial survey on Route 147 station 97+65 showed an Immediate Indication. After Re-survey, the indication dropped to a Monitor Indication. No corrosion greater than 12.8% wall loss was discovered. The minimum SFcorr was calculated to be 2.97. All of the Monitor Indications remained Monitor Indications.

No Indication: There were two excavations examined. L132, MP 22.58 to 24.25, station 42+49 was a required Effectiveness #2 direct examination. Old corrosion was found. Limiting Case Pf was 0.71”(25%) deep, deeper corrosion 0.98” had higher Pf because it was not long. This station reprioritized to a Schedule Indication. A second NI excavation was examined, L132, MP 22.58 to 24.25, station 7+04. No corrosion was found. This station remained a No Indication.

Reassessment Interval: The reassessment interval for this surveyed section (22.58-24.25) is 6.4 years. For specific details regarding the remaining life calculations and reassessment intervals see the compliance documentation Form K

Summary of Findings/Mitigation and Recommendations: See the tables that follow

High Priority P/M Recommendations:

Route	IMA (Integrity Management Area)	Mile Posts	Location Stationing	Location Description	Priority and/or Reason	Task	Status (Unassigned, Assigned, Being Worked, Completed)	Order Number (Unassigned, Not Needed, or Number)	Assigned to & Planned /Actual Compltn Date * & **
132		37.80-40.77	12+91			Install soil Corrosion probes at Sta 12+91. This is to be done in lieu of a direct examination.			12/31/2009
132		Various	129+98, 124+01, 42+48, 7+04, 52+97, 59+38, 50+75			Add the following locations where corrosion was found to the CP monitoring program: 129+98, 124+01, 42+48, 7+04, 52+97, 59+38, 50+75. If monitoring facilities were not added during bell hole activities, then they need to be added.			12/31/2009
147		0.55-3.57	97+65,95+67, 96+27			Add the following locations where corrosion was found to the CP monitoring program: 97+65,95+67, 96+27. If monitoring facilities were not added during bell hole activities, then they need to be added.			12/31/2009

* For IMACS Forecast Completion Date, enter the later of the planned dates in this column

** For IMACS Completion date, after all items have been completed, use the later of the completion dates

No work required immediately (will be noted and acted on as opportunity presents itself) P/M Recommendations:

Route	IMA (Integrity Management Area)	Mile Posts	Location Stationing	Location Description	Priority and/or Reason	Task	Status (Unassigned, Assigned, Being Worked, Completed)	Order Number (Unassigned, Not Needed, or Number)	Assigned to & Planned /Actual Completion Date
132A		0.00-1.45			No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Investigate why the on/off shift doubles from one side (70 mV) of the HWY 101 Freeway to the other side (140 mV). Casing contact?			
132		22.58-24.25	28+60, 31+80, 36+80 – 39+00, 48+30, 56+60, 63+00 – 67+00, 68+50 – 72+00, 83+00		No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Report shallow pipe (<36-inches of cover) locations to resident PLE. Station 28+60, 31+80, 36+80 – 39+00, 48+30, 56+60, 63+00 – 67+00, 68+50 – 72+00, 83+00.			
132		22.58-24.25			No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	4) Rectifier unit 603 at Moore Rd has very high (43ohm) circuit resistance. Investigate and verify. If correct plan for replacement of ground bed. This item is also on the Nseg-109-2004 Mitigation plan			
132		22.58-24.25			No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	5) Rectifier unit at NW corner of Foothill Dr and Page Mill Rd has high circuit resistance (16.3 ohms), and voltage is near rated nameplate value. Investigate and verify. Plan for ground bed replacement. This item is also on the Nseg-109-2004 Mitigation plan			
132		22.58-24.25			No Work Required	6) Rectifier unit 41 at NW corner			

							of Campus and Junipero Serra has current output nearing rated nameplate value. Investigate and verify.			
8805-03		0.00-0.56				No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Investigate reason for small on/off shift between stations 8+00 and 27+78. Check ECDA survey for proper interruption plan. Possible galvanic			
8805-03		0.00-0.56				No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	2) Rectifier unit #63 at the corner of Wiseman & Walker (400-feet west of Walker) is operating at 125% of rated voltage – replace grounded. This item is also on the Nseg-109-2004 Mitigation plan			
8805-03		0.00-0.56				No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	3) Rectifier #37 at the corner of Middlefield and Rengsdorff is operating at 108% of rated amperage. Investigate and take necessary appropriate action.			
132		30.50-31.30		3+00 – 4+20, 12+60, 24+15		No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Report shallow pipe (<36-inches of cover) locations to resident PLE . Station 3+00 – 4+20, 12+60, 24+15.			
132		31.60-32.46		4+60, 13+00 – 19+00, 23+40		No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Report shallow pipe (<36-inches of cover) locations to resident PLE. Station 4+60, 13+00 – 19+00, 23+40.			
132		34.30-3503		11+50, 13+50 – 15+00, 18+00 – 20+00, 21+40, 23+40.		No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	2) Report shallow pipe (<36-inches of cover) locations to resident PLE . Station 11+50, 13+50 – 15+00, 18+00 – 20+00, 21+40, 23+40.			
147		0.55-3.47				No Work Required Immediately. Will be noted and acted on as opportunity presents itself.	1) Rectifier unit #323 at the corner of Corilleras & Brittan is operating at 132% of rated voltage – replace grounded.			

[illegible]

No work required (Informational only or will be performed under unrelated other work) P/M Recommendations:

Route	IMA (Integrity Management Area)	Mile Posts	Location Stationing	Location Description	Priority and/or Reason	Task	Status (Unassigned, Assigned, Being Worked, Completed, Not Applicable)	Order Number (Unassigned, Not Needed, or Number)	Assigned to & Planned /Actual Compltn Date
132		22.58-24.25	51+35			2) Excavate and inspect for old corrosion approx station 51+35. If old corrosion is found consider expanding the inspection to include adjacent holidays at 51+98, and 51+30.			
132		22.58-24.25	45+25- 46+45			3) Consider recoating from 45+25 to 46+45. Optional.			
132		34.30-35.03	36+50			1) Excavate and inspect pipe at final location suspected to have old corrosion. Station 36+50. Install corrosion coupon and make this location a permanent compliance monitoring point.			